

MARKED UP VERSION OF AMENDMENTS

1. (Issued) A magnetic inductance communication system, comprising:
  - a first transmission/reception coil producing a magnetic field including a transmitted signal;
  - a plurality of second transmission/reception coils having different orientations for receiving the transmitted signal and generating a plurality of received signals;
  - a summing circuit for combining the plurality of received signals to produce a summed signal;
  - at least one first phase adjusting circuit for adjusting a phase of at least one respective received signal prior to summing to increase the amplitude of the summed signal; and
  - a modulator circuit for modulating a signal to be transmitted, wherein the modulator circuit includes:
    - at least one second phase adjusting circuit receiving a carrier signal and a phase adjustment signal from the at least one first phase adjusting circuit;
    - a plurality of driving circuits, each driving circuit receiving the signal to be transmitted and a respective output signal from one of the second phase adjusting circuits, for generating a respective driving signal on one of the plurality of second transmission/reception coils to generate a second magnetic field; and
    - signal processing circuitry connected to the first transmission/reception coil to receive the signal in the second magnetic field.
2. (Issued) The magnetic inductance communication system of claim 1, wherein said at least one second phase adjusting circuit changes polarity of the carrier signal based upon a polarity of at least one of the received signals.
3. (Issued) The magnetic inductance communication system of claim 1, wherein said at least one second phase adjusting circuit adjusts the phase of the carrier signal according to phases of each of the received signals.

4. (Issued) A magnetic inductance communication system comprising:
  - a first transmission/reception coil producing a magnetic field including a transmitted signal;
  - a plurality of second transmission/reception coils having different orientations for receiving a transmitted signal and generating a plurality of received signals;
  - a plurality of amplitude determining circuits corresponding to the plurality of second transmission/reception coils for determining amplitudes of the plurality of received signals;
  - a modulator circuit for modulating a signal to be transmitted, wherein the modulator circuit includes:
    - a plurality of driving circuits each driving circuit receiving a carrier signal to be transmitted for generating a respective driving signal on one of the plurality of transmission/reception coils to generate a second magnetic field; and
    - a selection circuit for activating at least one of the driving circuits based upon the amplitudes of the received signals; and
    - signal processing circuitry connected to the first transmission/reception coil to receive the signal in the second magnetic field.
5. (Issued) The magnetic inductance communication system of claim 4, wherein the selection circuit activates one of the driving circuits corresponding to a transmission/reception coil having a greatest amplitude of a received signal.
6. (Issued) The magnetic inductance communication system of claim 4, wherein the selection circuit activates two of the driving circuits corresponding to a transmission/reception coils having a greatest amplitudes of received signals.
7. (Issued) The magnetic inductance communication system of claim 6, wherein the modulator further includes at least one phase adjusting circuit receiving the carrier signal and a phase adjustment signal for adjusting the phase of the carrier signal provided to at least one of the two activated driving circuits so that the combined second magnetic field has a maximum value.

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9. (Previously Presented) A method as in claim 18 further comprising:  
multiplexing each of the electronic signals to an error amplifier circuit and generating corresponding phase adjustment signals to align the electronic signals.
10. (Previously Presented) A method as in claim 9 further comprising:  
maintaining a phase adjustment of at least one electronic signal during which another electronic signal is monitored for generating a corresponding phase adjustment signal.
11. (Twice Amended) A method as in claim 18, wherein the ~~receivers include~~ transducers are inductive transducer devices.
12. (Previously Presented) A method as in claim 18 further comprising:  
adjusting a polarity of one or more of the electronic signals so that the electronic signals have the same sign and sum to produce a larger output signal.
13. (Previously Presented) A method as in claim 12, wherein a polarity of an electronic signal corresponding to the inductive input signal is changed by phase shifting.
14. (Previously Presented) A method as in claim 18, wherein the inductive input signal includes information modulated on a carrier frequency signal.
15. (Twice Amended) A method as in claim 18, wherein the uniquely oriented ~~receivers~~ transducers are orthogonally disposed to each other.
16. (Previously Presented) A method as in claim 18 further comprising:  
comparing a phase of each of the electronic signals with a common reference signal;  
and

controlling a local oscillator in a corresponding phase shifter to align the phase of each electronic signal with the reference signal.

17. (Previously Presented) A method as in claim 18 further comprising:  
generating an error signal that is used to adjust a phase of at least one electronic signal relative to a reference signal.
18. (Twice Amended) A method for communicating, the method comprising the steps of:  
receiving an inductive input signal on each of multiple uniquely oriented ~~receivers~~ transducers;  
generating an electronic signal corresponding to the received inductive input signal for each of the ~~receivers~~ transducers;  
compensating for a relative motion of the ~~receivers~~ transducers with respect to the inductive input signal by adjusting a phase of at least one of the electronic signals; and  
summing the aligned electronic signals to produce an output signal that corresponds to the inductive input signal.
19. (Amended) A method as in claim 18, wherein the phase of the electronic signals are adjusted at a fast enough rate to account for the relative motion of the ~~receivers~~ transducers.
20. (Amended) A method for communicating, the method comprising the steps of:  
orienting each of multiple ~~transmitter devices~~ transducers along a unique axis to generate a magnetic field;  
identifying a target receiver to which the magnetic field is transmitted; and  
adjusting a phase output of the multiple ~~transmitter devices~~ transducers to produce the magnetic field for the target receiver.
21. (Amended) A method as in claim 20, wherein the magnetic field is generated from three orthogonally disposed ~~transmitter devices~~ transducers.

22. (Previously Presented) A method as in claim 20 further comprising:  
receiving the magnetic field on a single reception coil at the target receiver.
23. (Previously Presented) A method as in claim 22, wherein the single reception coil is disposed in a portable device.
24. (Amended) A method as in claim 20 further comprising:  
generating an electronic signal of information to be transmitted to the target receiver;  
and  
multiplying the electronic signal with corresponding phase adjusted carrier frequencies to produce modulated signals and driving the ~~transmitter devices~~ transducers with the modulated signals to produce the magnetic field.
25. (Amended) A method as in claim 20 further comprising:  
disposing the multiple ~~transmitter devices~~ transducers in a portable device.
26. (Previously Presented) A method as in claim 25 further comprising:  
coupling the portable device to a communications network.
27. (Amended) A method for communicating, the method comprising the steps of:  
receiving an inductive input signal on each of multiple uniquely oriented ~~receivers~~ receiver transducers, the inductive input signal being received from a remote source transducer;  
generating an electronic signal from each of the ~~receivers~~ receiver transducers, each electronic signal corresponding to the inductive input signal;  
based on a phase difference of the electronic signals, adjusting a phase of at least one of multiple transmitters transmitter transducers to produce an inductive output signal that is transmitted to a target receiver transducer near the remote source transducer.

28. (Amended) A method as in claim 27, wherein the multiple ~~transmitters~~ transmitter transducers are aligned along similar axes as the uniquely oriented ~~receivers~~ receiver transducers.
29. (Amended) A method as in claim 28, wherein the uniquely oriented ~~receivers~~ receiver transducers and ~~transmitters~~ the transmitter transducers ~~utilize a common set of transducers~~ to transmit and receive corresponding inductive signals are the same transducers.
30. (Amended) A method as in claim 27, wherein the target receiver transducer near the remote source transducer is oriented along a same axis as the remote source transducer.
31. (Amended) A method as in claim 27, wherein the target receiver transducer ~~near and~~ the remote source transducer ~~includes~~ are a single transducer that is used to both transmit and receive corresponding inductive signals.
32. (Previously Presented) A method as in claim 27, wherein the inductive output signal is transmitted to a portable device.
33. (Previously Presented) A method as in claim 32, wherein the portable device is coupled to a communications network.
34. (Amended) A method as in claim 27, wherein the ~~receivers~~ receiver transducers ~~include~~ are three orthogonally positioned transducers.
35. (Previously Presented) A method as in claim 27, wherein the inductive input signal is received from a portable headset.
36. (Previously Presented) A method as in claim 27 further comprising:
  - multiplexing each of the electronic signals to an error amplifier circuit and generating corresponding phase adjustment signals to align the electronic signals; and

utilizing the phase adjustment signals to produce the inductive output signal.

37. (Amended) A method as in claim 36 further comprising:  
maintaining a phase adjustment of at least one transmitter transducer during which another electronic signal is monitored for generating a corresponding phase adjustment signal for another transmitter transducer.
38. (Previously Presented) A method as in claim 27, wherein the inductive output signal includes information modulated on a carrier frequency signal.
39. (Amended) A method as in claim 27, wherein the uniquely oriented ~~receivers~~ receiver transducers are orthogonally disposed to each other.
40. (Amended) A method as in claim 27 further comprising:  
comparing a phase of each of the electronic signals with a common reference signal;  
and  
controlling a local oscillator in a corresponding phase shifter to adjust the phase of each transmitter transducer with respect to the reference signal.
41. (Amended) A method as in claim 27 ~~further comprising~~ wherein:  
adjusting a phase of at least one of the multiple transmitter ~~device~~ transducers to ~~compensate~~ compensates for a relative motion of the ~~receivers~~ receiver transducers with respect to the inductive input signal.
42. (Amended) A method for communicating, the method comprising the steps of:  
receiving an inductive input signal on each of multiple uniquely oriented ~~receivers~~ receiver transducers, the inductive input signal being generated from a remote source transducer;

producing an electronic signal that corresponds to the inductive input signal for each of the ~~receivers~~ receiver transducers, a level of each electronic signal being proportional to a strength of the received inductive input signal at a corresponding ~~receiver~~ receiver transducer;  
~~detecting which receiver produces a strongest electronic signal based upon a reception of the inductive input signal;~~  
~~generating an inductive output signal from a transmitter oriented along a similar axis as the receiver that produces the strongest electronic signal~~  
tracking a phase of each electronic signal during motion of the remote source transducer relative to the multiple uniquely oriented receiver transducers; and  
based on the phase of at least one electronic signal, adjusting an inductive output signal from a transmitter transducer for communicating with a target receiver transducer.

43. (Amended) A method as in claim 42, wherein the transmitter transducer from which the inductive output signal is generated is one of multiple uniquely oriented ~~transmitters~~ transmitter transducers.
44. (Amended) A method as in claim 43, wherein the uniquely oriented ~~transmitters~~ transmitter transducers generating an inductive output signal are aligned along similar axes as the uniquely oriented ~~receivers~~ receiver transducers receiving the inductive input signal.
45. (Amended) A method as in claim 44, wherein the ~~receivers and transmitters utilize a common set of~~ transducers to transmit and receive corresponding inductive signals are the same multiple uniquely oriented transducers.
46. (Amended) A method as in claim 42 further comprising:  
 comparing an amplitude of the electronic signals to determine which of the multiple uniquely oriented ~~receivers~~ receiver transducers receives the strongest electronic signal.
47. (Amended) A method as in claim 42, wherein the inductive output signal is transmitted to [a] the target receiver transducer near the remote source transducer.



48. (Amended) A method as in claim 47, wherein the target receiver transducer near the remote source transducer is oriented along a similar axis as the remote source transducer.
49. (Amended) A method as in claim ~~48~~ 42, wherein the target receiver transducer at and the remote source transducer includes are a single transducer that is used to both transmit and receive corresponding inductive signals.
50. (Amended) A method as in claim 43 further comprising:  
detecting which of the multiple ~~receivers~~ receiver transducers produces a strongest set of electronic signals; and  
generating an inductive output signal from ~~transmitters~~ transmitter transducers oriented on similar axes as the ~~receivers~~ receiver transducers that generate the strongest set of electronic signals.
51. (Amended) A method as in claim 50 further comprising:  
adjusting at least one phase output of the ~~transmitters~~ transmitter transducers  
generating the inductive output signal for maximal reception at a target receiver transducer located near the remote source transducer.
52. (Previously Presented) A method as in claim 42, wherein the inductive output signal is transmitted to a portable device.
53. (Previously Presented) A method as in claim 52, wherein the portable device is coupled to a communications network.
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87. (Amended) A system for communicating, the system comprising:

multiple uniquely oriented ~~receivers~~ receiver transducers, each of which receives an inductive input signal, the inductive input signal being generated from a remote source transducer;

a circuit coupled to the ~~receivers~~ receiver transducers that produces an electronic signal corresponding to the inductive input signal for each of the ~~receivers~~ receiver transducers, ~~a level the phase~~ of each electronic signal being ~~proportional to a strength of the received inductive input signal at a corresponding receiver~~ a function of the orientation of the remote source relative to the multiple uniquely oriented receiver transducers;

a ~~comparator~~ detection circuit that detects ~~which receiver produces a strongest the~~ phase of each electronic signal based upon a reception of the inductive input signal; and

a driver circuit that generates an inductive output signal from a ~~transmitter~~ transmitter transducer ~~oriented along a similar axis as the receiver that produces the strongest electronic signal~~ based on the phase of at least one of the produced electronic signals.

88. (Amended) A system as in claim 87, wherein the ~~transmitter~~ transmitter transducer from which the inductive output signal is generated is one of multiple uniquely oriented ~~transmitters~~ transmitter transducers.

89. (Amended) A system as in claim 88, wherein the uniquely oriented ~~transmitters~~ transmitter transducers are aligned along similar axes as the uniquely oriented ~~receivers~~ receiver transducers receiving the inductive input signals.

90. (Amended) A system as in claim 89, wherein the ~~receivers and transmitters~~ utilize a common set of transducers to transmit and receive corresponding inductive signals are the same uniquely oriented transducers.

91. (Amended) A system as in claim 87, wherein the ~~comparator~~ detection circuit compares an amplitude of each of the produced electronic signals to determine which of multiple uniquely oriented ~~transmitters~~ transmitter transducers will generate the inductive output signal.
92. (Amended) A system as in claim 91, wherein the inductive output signal is transmitted to a target receiver transducer near the remote source transducer.
93. (Amended) A system as in claim 91, wherein the target receiver transducer near the remote source transducer is oriented along a similar axis as the remote source transducer.
94. (Amended) A system as in claim 93, wherein the target receiver transducer at and the remote source transducer includes are a single transducer that is used to both transmit and receive corresponding inductive signals.
95. (Amended) A system as in claim 88 further comprising:  
a ~~comparator~~ detection circuit that detects which of the multiple ~~receivers~~ receiver transducers produces a strongest set of electronic signals; and  
driver circuits to generate an inductive output signal from ~~transmitters~~ at least one of the transmitter transducers oriented on similar axes as the ~~receivers~~ receiver transducers that generate the strongest set of electronic signals.
96. (Amended) A system as in claim 95, wherein at least one phase output of the ~~transmitters~~ transmitter transducers is adjusted to generate the inductive output signal for maximal reception at a target receiver transducer located near the remote source transducer.
97. (Previously Presented) A system as in claim 87, wherein the inductive output signal is transmitted to a portable device.
98. (Previously Presented) A system as in claim 97, wherein the portable device is coupled to a communications network.

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122. (Previously Presented) A method as in claim 18 wherein adjusting the phase of at least one of the electronic signals substantially aligns the electronic signals with each other.